The Golden Hour

CasEvac stands for casualty evacuation. This term applies when injured military or civilians are emergency evacuated from a war zone. Air CasEvacs are almost exclusively flown by helicopter. The aircraft may have limited medical equipment, and the corpsman only may have basic medical training. The aircrew quickly must transport the injured personnel from the battlefield to the nearest medical facility. The crews are armed, and they assume much more risk to carry out this mission. Getting an injured person advanced medical care within one hour greatly increases their chances of survival; Doctors call this the Golden Hour.—Ed.

A Flight Surgeon's Perspective

By Lt. Cari Matthews, MC

The war zones of America's inner cities provide the training grounds for the battlefields of Iraq. These settings offer the best preparation possible, with some limitations, for the horrors of modern war.

Before I participated in CasEvac missions in Iraq, I learned to treat the victims of gunshot wounds and traffic wrecks on the streets of Atlanta, Washington, D.C., and New Orleans. There are differences, of course, but the system we use to rescue those wounded in OIF is modeled after American emergency medical response.

Photo by PH3 Lisa Hennings.

Like our civilian counterparts, we strive to get the victims of accident, injury and terrorism to the operating room or the intensive-care unit within the first hour they are injured. This Golden Hour provides the best chance of survival. The infrastructure in war-torn Iraq doesn't support a telephone network, and the roads are much too dangerous for an effective ground ambulance, so we use our air assets.

My experience is with the Marines. I am the flight surgeon for HMM-161, the Greyhawks. From August 2005 to February 2006, we provided daytime, casualty evacuation and transport of medical emergencies in the Al Anbar province of Western Iraq.

Describing the mission is deceptively simple. Find the victim, fly in and rescue him, then keep him alive in the back of the helicopter until we can get him where he needs to go. The concept is basic, but the reality is much more difficult.

The CH-46Es flown by our squadron initially were not intended to be used for medical missions. Unlike the Army, which has dedicated medical air assets with special equipment to provide complicated oxygen delivery and even defibrillation, our aircraft are utilitarian. Whatever medical equipment we have in the aircraft, we bring on ourselves. We have to frequently modify the configuration in the back of the aircraft to accommodate litters for our patients, and then switch back to general support, VIP transport, and cargo-support functions. Unlike the Army's medical helicopters, our aircraft are armed with .50-caliber machine guns, and we do not have the special designation and protection of a medical vehicle under the Geneva Convention. This situation is a mixed blessing in a war where the enemy prefers targets they perceive as more vulnerable, such as rescue aircraft.

We have rudimentary medical equipment available to us in the back of our helicopters, but we have learned to use this equipment to work miracles. When our equipment fails, our instincts and training aid us in providing succor to our fallen heroes. We can breathe for them, with the aid of tubes in the throat and plastic devices that fill the lungs with air. We can give fluids to help restore circulation in those who have lost blood. We can staunch bleeding wounds, dress severe burns, splint broken limbs, and provide medications to ease pain or anxiety. In doing all these things, we supply comfort and hope in abundance.

Our CasEvac missions have provided care to hundreds of people: fallen Marines and Soldiers, Iraqi allies, American and allied-nation civilians, local wounded who have been devastated by acts of terror, and those who just have shown up on our doorstep asking for help for their ill children. Like all medical providers, we have taken the Hippocratic oath to provide care for all, regardless of who they may be, so we even risk our lives to save injured enemy combatants.

Perhaps nowhere else in our military today is the joint participation of our Navy and Marine Corps team better exhibited than with CasEvac. We have integrated two completely different missions, medical care and aviation-assault support, into a single system. Navy corpsmen, nurses, and physicians artfully work alongside Marine aircrew and pilots. We could not keep people alive without the Marines to fly them to their next destination. The Marines rely on us to provide the care that will sustain these lives through the gut-wrenching airborne moments.

The helicopter aircraft commander (HAC) assumes ultimate responsibility for the safety of every person on the aircraft. The medical providers in the back must keep the pilots updated on the status of the patients. If a patient

becomes critically ill and precious seconds will make the difference in saving a life, the HAC will divert to the closest facility, not necessarily the one with the most sophisticated care available.

The aircrew play a pivotal role in the mission by directing the placement of patients inside the aircraft. They must know how to safely load them, with the most critical patients being placed in an accessible spot with easy egress. With mass casualties, aircrew direct the loading of patients in the most sensible and safe order. To my knowledge, the only time a patient ever was injured during a mission was when one of the corpsmen failed to listen to the direction of a crew chief. The crew chiefs are in charge of the back of an aircraft, and a CasEvac mission is no exception.

The brunt of the medical mission, however, falls on the backs of the CasEvac corpsmen. These young Sailors, who make up for in heart anything they may lack in refined medical knowledge, have duties among the toughest. Very few of them have had advanced lifesaving training, and, for many, this is their first assignment in the Navy.

We had a mere 40 CasEvac corpsmen with our squadron, and they manned aircraft 24 hours a day for seven months. They flew in extreme weather and daily risked their lives without complaint. If necessary, they ran to rescue the wounded on the ground, while rounds were being fired overhead. They flew despite many internal emotional battles with the ghosts of traumatic experiences. They witnessed some of the most horrifying acts of violence our generation ever will see. They are true heroes. The only reward they ever asked for was the honor of looking a wounded Marine in the eye, holding his hand, and telling him, "You did a great job; now we're going to get you home."

Lt. Matthews is a flight surgeon with HMM-161.

A Corpsman's Perspective

By HM3 Jefferoy Kennedy

After checking in to HMM-161 for duty as a squadron corpsman, I was sent to Yuma, Ariz., for the Desert Talon course. I was joined by another squadron corpsman scheduled to fly CasEvac missions for OIF-II. We were put on a regular rotation for flights that, among other tasks, practiced taking-on and off-loading patients. This syllabus was geared toward flight duties, and we practiced taking care of patients in a training setting in the back of the CH-46E. The aircrew also got experience having patients on board while working alongside corpsmen.

The class reviewed the types of injuries that had been reported during OIF-I, how we would treat them, and what we could or couldn't do. Each CasEvac mission is different, and we discussed what to do in a variety of situations. At the end of the week, we were given a complete tour of the CH-46E, and received emergency-procedures training.

We then went to the dunk tank at MCAS Miramar, where we received swimming training. We earned the same swim qualifications required of all aircrew, including getting checked out in emergency-ditch procedures.

We then joined the last of HMM-161, and left for Al Taqqaddum, Iraq. A couple of months later, we took over the CasEvac mission from the Army. I regularly was paired with a highly qualified corpsman, HM3 (now HM2) Christopher Pair. He helped continue my training in emergency medicine and procedures.

The setup for each day was routine: After morning muster, the previous crew took all the gear off the aircraft and staged it at a designated spot. We then went over what gear each section would need. A section consisted of two aircraft, with three sections total. We would have the oncoming CasEvac team leader for the next shift attend the aircrew brief and note the aircraft and section assignments. We also made sure we had the right medical equipment on board.

In the first couple months, when the sections and aircraft would change their lineup, the corpsmen would trade out the required gear (usually just from one section leader to another). Later, when the temperature rose to around 120 F to 130 F, or higher, we noticed the batteries on the suction machine and vital-signs monitor would start to die toward the middle and end of the day shift, even though they were fully charged the night before

and sometimes not used. We decided to keep both machines on a rotating charge with their respective charging devices.

If a CasEvac mission was called, the CasEvac bell would be rung, and the maintenance chief would notify everyone on the radio. Our objective was to make sure the turn up and takeoff was fast, efficient and safely done. That first hour after the injury occurs is extremely vital to the patient.

The night shift also included a regular mission, later to be known as the milk run. Before the night shift aircrew got their brief, patients who needed transport or those who later might need to be moved to a higher level of care (but were stabilized enough to wait a few hours), would be identified. The section leader would be given a time by the direct-air-support center (DASC) to start the milk run. Injured patients from TQ SSTP, Blue Diamond, Camp Fallujah, and Camp Ramadi medical would be transported to the CACH in Baghdad, or to the Army surgical center in Ballad, depending on the patient's needs. We also would transport personnel who had finished medical treatment in theater and needed to return to their respective units. They would get dropped off at any of the medical units mentioned above for further transport via ground units. The milk run would last anywhere from an hour to six hours, depending on the patient load and how many places and trips it took to get the mission done.

When we were not flying, Cdr. Boyle, a surgeon from the SSTP, liked to visit once or twice and week and show us new and better ways of doing emergency medicine. We welcomed his training, knowing it would help us become better corpsmen.

HM3 Kennedy was with HMM-161.